Open Source, Apple, and You

Session 103

Open Source, Apple, and You

Brett Halle
Director, Core OS Engineering

Introduction

- Overview of Apple's open source projects
- Where we're going
- How you can participate

Open Source Projects

- Darwin
- Darwin Streaming Server
- OpenPlay
- CDSA
- HeaderDoc
- Documentation project

New Open Projects

- Open Directory
- CUPS
- More Darwin goodies
    - IPv6, IPSec
    - OpenLDAP, NetSNMP, PAM, . . .
- More pieces from CoreFoundation

Common Data Security Architecture

- Open Group standard
- Basis for security features in Mac OS X
  - Keychain, Encrypted DiskCopy, . . .
  - PAM integration
- Modular plug-ins for:
  - Cryptography
  - Certificate management and trust
  - Storage of keys
- Replaces OpenSSL in Mac OS X

IPv6, IPSec

- Open source network components
  - Available in Darwin CVS
- Kame team participating in Darwin

Documentation Project

- HeaderDoc
  - HTML doc from headers
- Community opportunities
  - How-to's, tutorials, man pages, XML tools
- Apple contributions
  - IO Kit, USB, FireWire, Kernel, etc.

Ongoing Collaboration With the Community

- FreeBSD, PAM, Apache, PHP, MySQL, XFree86, . . .
- Cross-platform support
    - Darwin for x86
    - Darwin Streaming Server ported to many platforms
    - OpenPlay for Linux, Mac OS, Mac OS X, Windows
- OpenOffice being ported to Mac OS X
- **http://opendarwin.org/**

New Darwin Committers

Development partners for open source projects

- Jun-Ichiro Hagino—IPv6 (Kame team)
- Ryo Kogule— Japanese documentation
- Murray Stokely—FreeBSD documentation
- Robert Watson—Trusted BSD

Up Next

- Darwin   **Jordan Hubbard**
- Darwin Printing   **Richard Blanchard**
- Open Directory   **David O'Rourke**
- Streaming Server   **Chris LeCroy**
- OpenOffice   **Ed Peterlin**
- OpenPlay   **Lane Roathe**
- Q&A

Participating in Darwin

- Feedback on **www.opensource.apple.com**
  - Want more access to bug info
  - Want to change sources
  - Want more frequent project news
  - Want more community control over the web site and projects
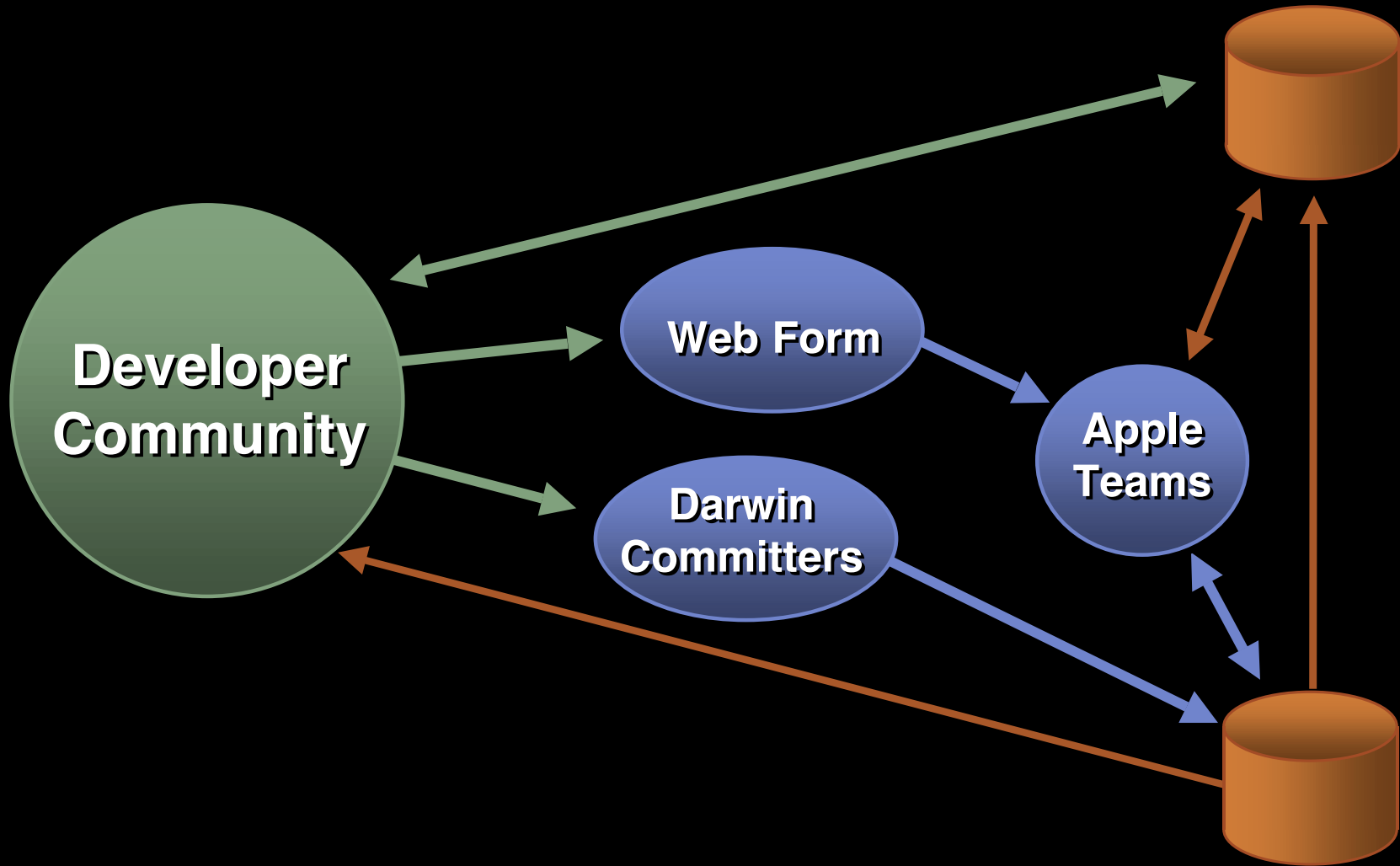
opendarwin.org

- Founded in April by ISC and Apple

- Open CVS repository

- Bug tracking, project news and documentation is community-maintained

- Infrastructure is volunteer-maintained and outside the "Apple firewall"

- Hosts a variety of open source projects

CVS

Opendarwin.org CVS

Developer Community

Web Form

Darwin Committers

Apple Teams

Darwin CVS

Key Darwin Initiatives

- Better support for Unix applications
  - Darwin ports collection
  - Unix APIs updated and expanded
  - "BSD SDK" package
- Integrate and synchronize with other open source projects
- Make Darwin easier to build

What's New in Darwin

- PAM API now fully integrated and supported

- Kerberos support now fully up-to-date with MIT reference

- Many, many Unix pieces updated (apache, sendmail, emacs, groff, Tcl, etc . .) ·

- APIs cleaned up and better supported

XFree86 Plans

- XFree86 4.2 (January 2002)
  - Runs rootless on Aqua desktop
- XFree 86 4.3 (mid-2002)
  - Hardware-accelerated 2-D drawing
  - Hardware-accelerated OpenGL
- XFree86 4.4
  - Aqua native window management

For Further Reference

- **http://www.opensource.apple.com/**

- **http://www.opendarwin.org/**

- **http://www.freebsd.org/**

- **http://www.apache.org/**

- **http://www.samba.org/**

- http://sourceforge.net/projects/xonx/

Roadmap

Darwin Birds of a Feather   Room A2
                                         Tue., 7:30pm

FF002 Darwin Feedback Forum   Room J1
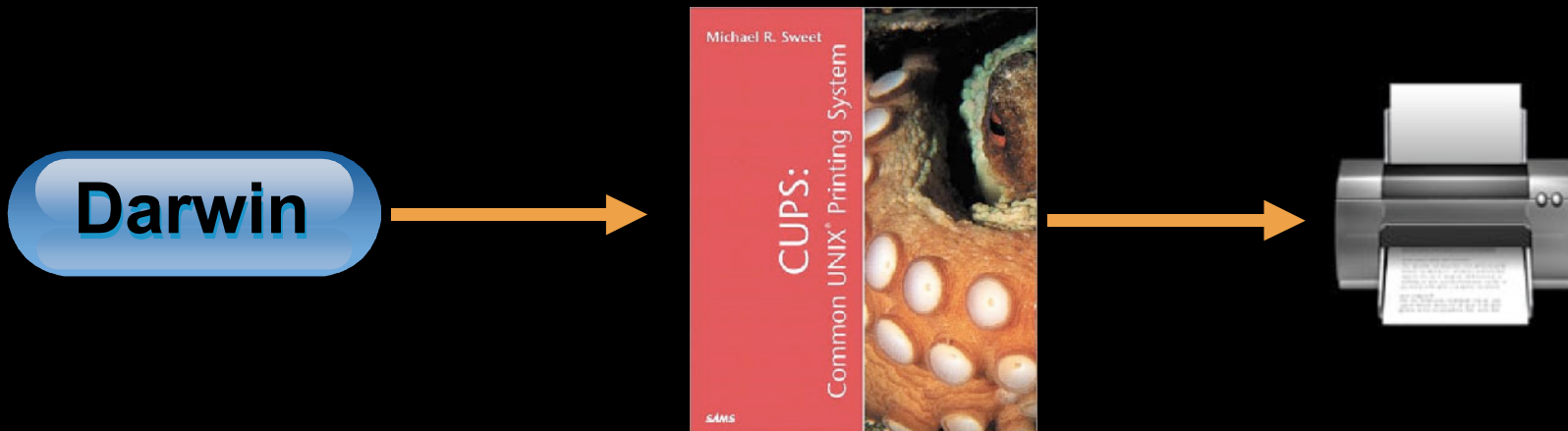   **Wed., 3:30pm**

Lots of Darwin Sessions   **See**
Throughout the Week   **Schedule**

Printing in Darwin

Richard Blanchard
Engineer/Scientist, Printing

Printing in Darwin

- In search of lpd replacement

- Requirements

  - Open source

  - Usable in both Darwin and Mac OS X

Darwin →

CUPS Strengths

- Internet Printing Protocol (IPP)
  - **www.pwg.org**
- Strong PPD Support
- BSD and System V command line tools
- Well documented
- Vibrant community/great support

Learning More and Participating

- For more information
  - **http://www.cups.org/**
  - CUPS: The Common Unix Printing System
    - By Michael Sweet
- Get involved!
  - Drivers for unsupported printers
  - Kerberos support
  - Log viewer

Roadmap

Darwin Birds of a Feather

Room A2
Tue., 7:30pm

109 Darwin Printing

Room J
Wed., 2:00pm

FF002 Darwin Feedback Forum

Room J1
Wed., 3:30pm

510 Printing and Mac OS X

Hall 2
Thurs., 10:30am

Open Directory

David O'Rourke
Engineering Manager, Mac OS X Server

Open Directory

- New name—Covers
  - Client Access, APIs, Server Software
- Combines industry-standard protocols and access technology
- Technology solutions shipped with Mac OS X
- Open Source as part of Darwin

What Is Open Directory?

- Open Directory Access
  - Mac OS X Directory Services
  - lookupd for BSD code
- Directory Server Technology
  - OpenLDAP integrated with NetInfo
- Integrated tools for managing Directory Contents
  - Server and Desktop all based on Open Directory Technologies

What Is Directory Services?

- Part of Open Directory
  - An architecture that allows access to any Directory System
  - Includes read/write API and plug-in architecture

Mac OS X Software

Open Directory Services

NetInfo   **LDAP**   **BSD Files**   **Other…**

Open Source

- Part of Darwin today
  - **http://www.apple.com/darwin**
  - DirectoryService
    - API Framework and daemon
  - LDAPv2, NetInfo, and Search Policy
- Jaguar
  - DSAgent for lookupd
  - LDAPv3 plug-in
  - BSD Configuration file plug-in
    - Read only
  - Service Discovery plug-ins

Open Directory Server

Mac OS X 10.1 NetInfo

- Mac OS includes a powerful Directory Service called "NetInfo"

- Part of Darwin

- Provides both standalone and shared network configuration repository

Roadmap

Darwin Birds of a Feather	Room A2 **Tue., 7:30pm**
110 Security: Authorization in Mac OS X	Civic **Wed., 2:00pm**
FF002 Darwin Feedback Forum	Room J1 **Wed., 3:30pm**
813 Directory Services	Room C **Thurs., 3:30pm**
814 Kerberos in Mac OS X	Room C **Thurs., 5:00pm**

Darwin Streaming Server

Chris LeCroy
Engineering Manager,
Darwin Streaming Server

General Status

- QTSS-1 released April, 1999
- QTSS-4 released February, 2002
- Over 300,000 downloads
- Open Source—easy to port to any POSIX compatible operating system
- Completely standards based
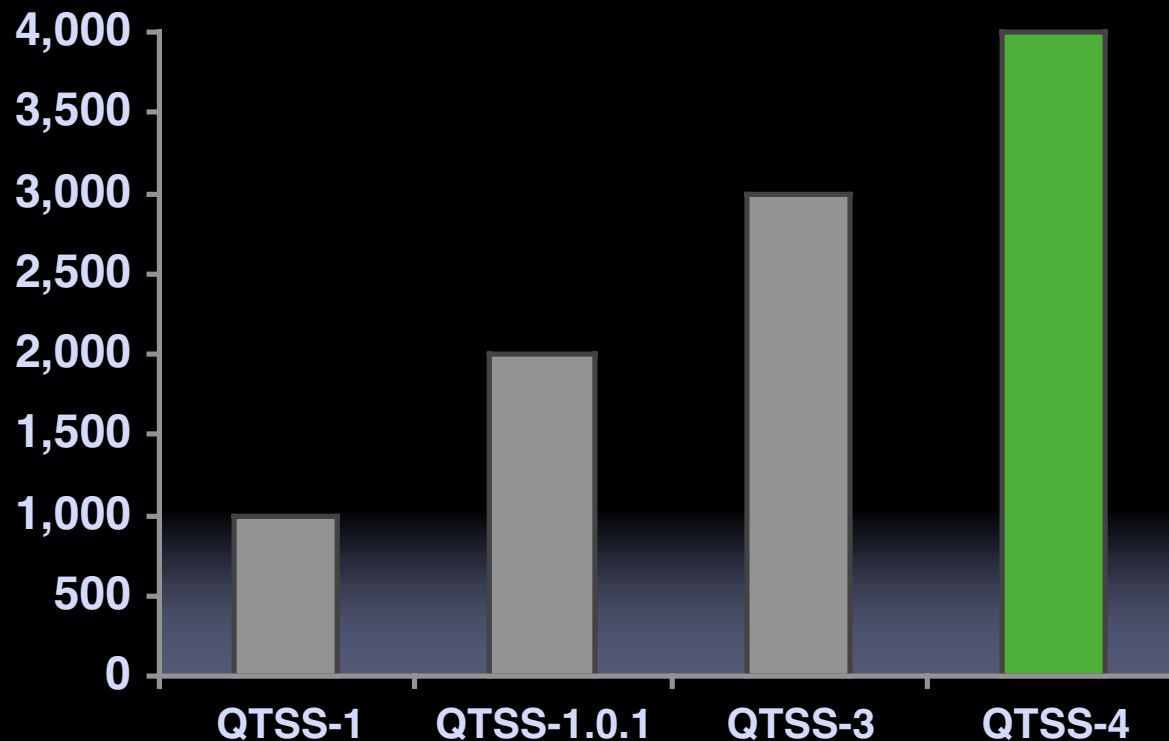
What's New in QTSS-4

- Module API enhancements and more Developer documentation
- Redesigned Web Admin
- Automated Relays
- Native MP3 streaming
- MPEG-4 support
- Performance improvements

Module API Enhancements and More Documentation

- Easier to build more powerful modules
- Makes it possible to write new types of modules
- New Documentation
  - Reliable RTP Protocol (Skip Protection)
  - Tunneling of RTSP via HTTP
  - Caching protocol extensions

Opportunities for Participation

- Autoconf support

- OS native packaging

- Developer documentation

Online Resources

- Streaming-server-developers mailing list
    - **http://lists.apple.com/**

- Apple Open Source
    - **http://www.opensource.apple.com/**

- QuickTime
    - **http://developer.apple.com/quicktime/**

Roadmap

812 QuickTime Streaming Server 4

Civic
Thurs., 2:00pm

**607 QuickTime and MPEG-4:
A Technical Overview**

Room A2
Fri., 3:30pm

FF010 QuickTime Feedback Forum

Room J1
Fri., 10:30am

OpenOffice

Ed Peterlin
OpenOffice Contributor

What Is OpenOffice?

- Open source project for technology within Sun's StarOffice productivity suite

- Ports

  - Linux PPC and x86, Solaris, Windows

  - Mac OS X developer build available

  - Several under development, including:

    - FreeBSD, IRiX, TRU64, Amiga, AIX, HP/UX

- 21 languages available

Porting Roadmap

- Stage 1: Build and link on Mac OS X
- Stage 2: Incorporate into OpenOffice 1.0 base
- Stage 3: Aqua, GCC3, Printing, Installation, . . .
- Stage 4: Beta testing and release 1.0 testing

How You Can Help

- Visit: **http://porting.openoffice.org**

- Mac OS X developers needed!

- Non-developers can help with:
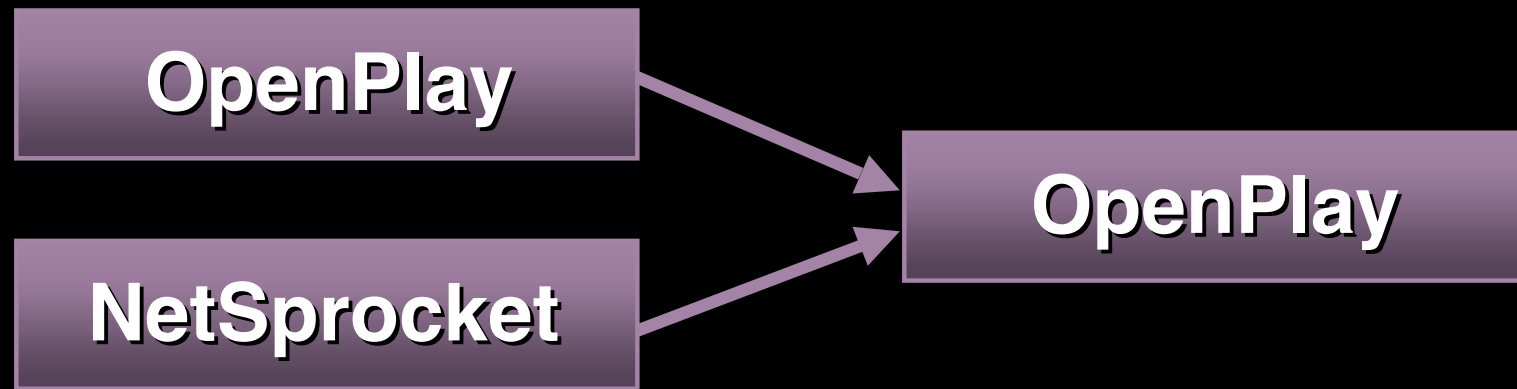 - Testing, Documentation, Web and graphics design, Usability, Local language content

OpenPlay

Lane Roathe
President, Ideas From the Deep

OpenPlay

- OpenPlay includes NetSprocket

OpenPlay	
	OpenPlay
NetSprocket	

- NetSprocket source remains available
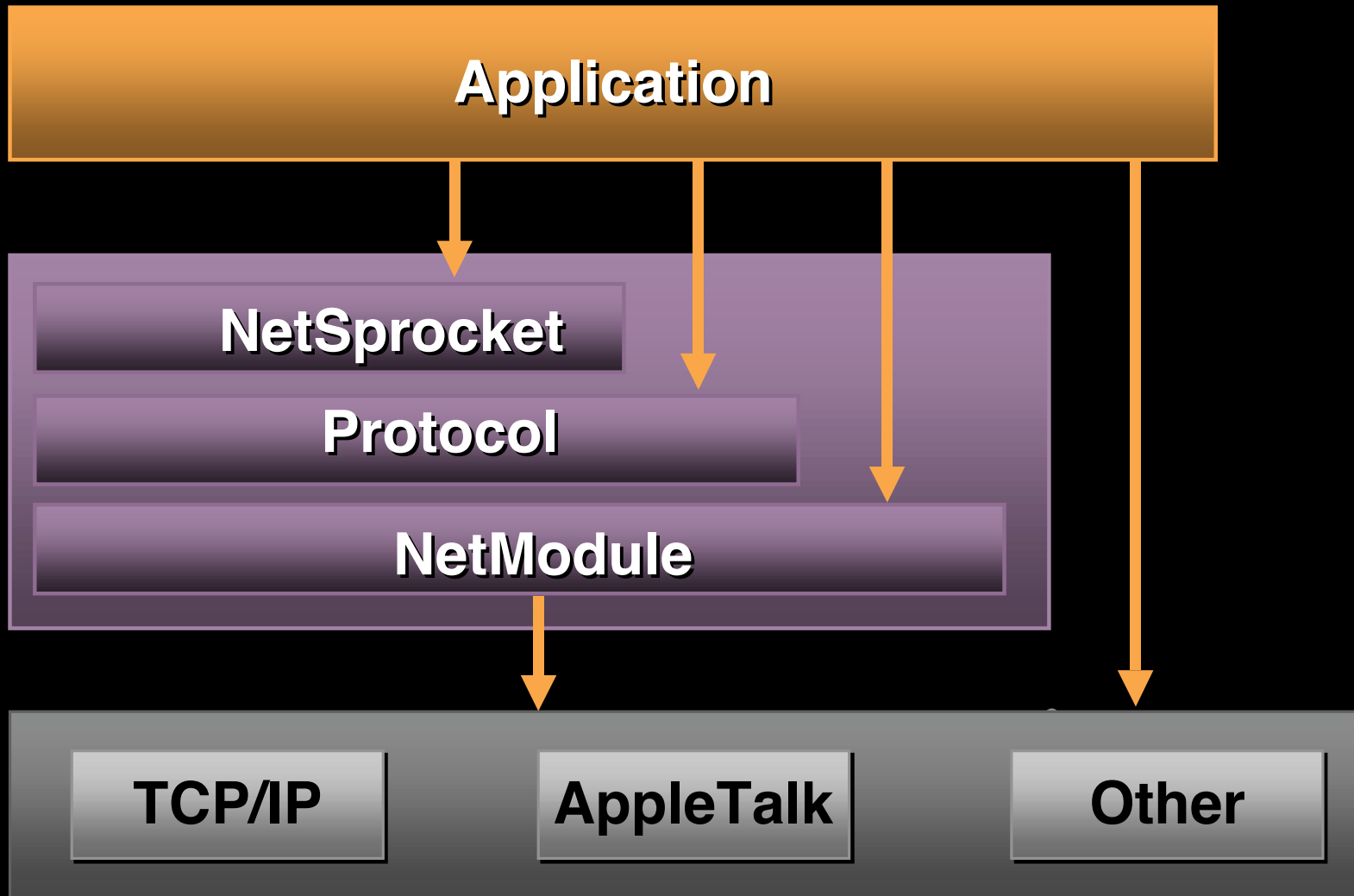 - But all activity is on OpenPlay

OpenPlay

- Networking API
    - Protocol- and OS-independent
        - Mac OS X, Mac OS, Windows, . . .
        - TCP/IP, AppleTalk, . . .
- 3 API Layers
    - Game interface (NetSprocket)
    - Protocol interface (Protocol)
    - Networking interface (NetModule)

New! Sample Apps!

- NetSprocket Stress test
- NSpExample1 game

Shipping Titles

3D Bridge Deluxe	Stronghold
Age of Empires II	Risk II
Alpha Centauri	Total Annihilation
Alien Crossfire	Tony Hawk Pro Skater 2
Burning Monkey Puzzle Lab	Oberin
Classic Cribbage	Scrabble
Colin's Classic Cards	Total Annihilation
Combat Mission: Beyond Overlord	Battle for the Universe
Combat Mission: Barbarossa to Berlin	Myth, the Fallen Lords
Galactica: Anno Dominari	Myth II, Soulblighter
Gamesmith	Myth III, the Wolf Age
Last Contact	Star Wars, Galactic Battlegrounds
Links Championship Edition	TacOpsCav
Links LS 2000	TacOps—U.S. Army release

… and many more

Demo

Lane Roathe
Darwin Committer

Roadmap

**512 Games Solutions:
NetSprocket and OpenPlay**

Room C
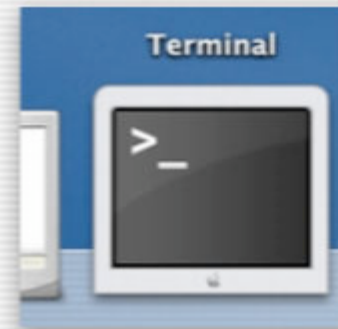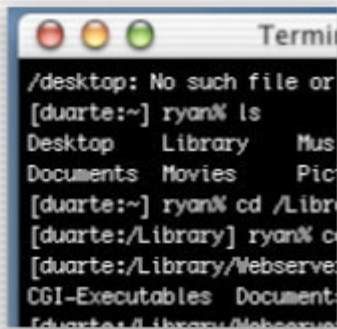**Thurs., 2:00pm**

Wrapping Up

Wrapping Up

- A great way to participate in projects
- Open source activity continues to build
- Upcoming conferences with Darwin
  - USENIX: June 10–15, Monterey
  - MacHack: June 20–22, Michigan
  - O'Reilly Open Source: July 22–26, San Diego
  - BSDCon Europe: November 15–17, Amsterdam

Q&A

Brett Halle
Director, Core OS Engineering

http://developer.apple.com/wwdc2002/urls.html

WWDC2002